



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

**MEMORANDUM**

**Date:** May 15, 2002

**SUBJECT:** BEAD Review of Korpalski Handler Exposure Assessment for Lindane Use as a Seed Treatment in the U.S.

**FROM:** David W. Brassard, Senior Entomologist  
Herbicide and Insecticide Branch  
Biological and Economic Analysis Division (7503C)

**THRU:** Arnet Jones, Chief  
Herbicide and Insecticide Branch  
Biological and Economic Analysis Division (7503C)

**TO:** Mark Howard, Chemical Review Manager  
Reregistration Branch III  
Special Review and Reregistration Division (7508C)

Peer Review Date: May 8, 2002

**SUMMARY**

In response to a request from SRRD, BEAD reviewed the "Handler Exposure Assessment for Lindane Use as a Seed Treatment in the United States" submitted by Uniroyal Chemical Company. BEAD believes that the application rates and seed planting rates used in Uniroyal's assessment are reasonable but disagrees with Uniroyal's estimate of 80 acres planted per day for corn, wheat, and canola. Based on the Science Advisory Council for Exposure Policy Number: 9.1, BEAD believes that 200 acres planted per day is a more reasonable upper bound estimate. BEAD also disagreed with Uniroyal's seed treatment equipment throughput assumptions for wheat of 165,000 pounds of wheat seed per day. Based on personal communications with seed treaters in the field and review of seed treatment equipment technical specifications, BEAD believes that commercial seed treaters commonly use equipment which treats 480,000 pounds of wheat seed per day.

**BACKGROUND**

In response to a request from SRRD, BEAD reviewed the “Handler Exposure Assessment for Lindane Use as a Seed Treatment in the United States” submitted by Uniroyal Chemical Company and Authored by Stefan J. Korpalski. In their request, SRRD asked BEAD to review throughput assumptions and lindane handling scenarios made by the registrant in their risk assessment of occupational exposures to lindane.

## **BEAD’s REVIEW OF LINDANE HANDLING SCENARIOS AND THROUGHPUT ASSUMPTIONS**

The application rates and seed planting rate used in the Korpalski study appear to be reasonable (Table 1). In BEAD’s opinion, Korpalski’s estimate of acres planted per day are too low. Korpalski assumed an 80 acre per day planting rate for corn, wheat, and canola. Their basis was that this is the standard EPA assumption (Policy 009, 4/1/99). EPA’s current policy (Science Advisory Council for Exposure Policy Number: 9.1, revised 4/25/01) for granular applications to corn and wheat are 200 acres per day. The EPA policy estimates are based (in part) on an analysis by Brassard and Ng (1993) which assumed the use of 20 row (or 50 foot wide) planters and an eight hour work day. These estimates should be considered as reasonable upper bound (95<sup>th</sup> percentile)<sup>1</sup>. BEAD is aware of situations in which growers working long hours on 24 row (60 foot wide) planters have planted 300 to 400 acres in a day. (Muggeridge, 1997).

In BEAD’s opinion, Korpalski’s seed treatment equipment throughput assumptions are reasonable for canola but on the low side for wheat. For canola, Korpalski estimated that 92,000 pounds of seed could be treated per day with a Gustafson® continuous batch coater, model CBT50. The manufacturers specifications for this piece of equipment state that it is capable of treating up to 13,000 lbs of seed per hour or 104,000 pounds of seed per day (Gustafson, 2002). I spoke to Roger Weinlaeder (of Weinlaeder Seeds in Drayton, ND) and he uses a Cerguard® seed treater which treats an average of 5,000 pounds of canola seeds hour and can treat up to 7,000 or 8,000 pounds of seed per hour under ideal conditions (equivalent to 40,000 to 64,000 pounds of canola seed per day (Weinlaeder, 2002).

For wheat, the Korpalski assessment assumed that wheat seed is treated with equipment such as the Gustafson S-100, which can treat about 165,000 lbs of wheat seed per day. Roger Weinlaeder treats wheat seed with a Boss® seed treater that can treat 60,000 pounds of seed per hour or 480,000 pounds of seed per day (Weinlaeder, 2002). There are several other large seed treaters commercially available that can treat this volume (i.e. 480,000 lbs of seed per day) of wheat including the Petkus® CTD and the Niklas® W.N. 36 S (Niklas, 2002, Petkus, 2002)..

Table 1. Comparison of Korpalski and BEAD Estimates

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<sup>1</sup> BEAD estimate based on the percentage of growers using 4 to 20 row planters on farm sizes less than 500 acres as discussed in Brassard and Ng (1993).

Crop	Application Rate (lbs ai/cwt)	Seed Planting Rate (lbs/acre)	Acres Planted/ Treated per day		Seed Treatment Equipment Throughput Assumptions (Pounds of seed treated per day)	
			Korpalski	BEAD	Korpalski	BEAD
corn	0.056	14	80	200	--	--
wheat	0.031	120	80	200	165,000	480,000
canola	0.75	5.36	80	200	92,000	40,000-104,000

## References

- Brassard, D.W. and Y. Ng. 1993. Transmittal of Corn Cluster Exposure Parameters. Internal Memorandum Larry Dorsey (HED). 12 pp.
- Gustafson, 2002. Technical Specifications for the Gustafson Continuous Batch Coater, Model CBT50, [http://www.gustafson.com/gustafson\\_equipment/id69.htm](http://www.gustafson.com/gustafson_equipment/id69.htm)
- Korpalski, S.J. 2002. Handler Exposure Assessment for Lindane Use as a Seed Treatment in the United States. Exposure study submitted to EPA by Uniroyal Chemical Company, Bethany, CT 06524, 13 pp.
- Muggeridge, J.M. 1997. Up to 400 acres a day. Farm & Country Magazine, February 1997 issue, Agricultural Publishing Company Ltd., Ottawa, Ontario, Canada.
- Niklas, 2002. Technical Specifications for the Niklas liquid seed treaters type W.N. 36 S. [http://www.niklas-beizgeraete.de/English/Conti\\_Units/Tech-Data/tech-data.html](http://www.niklas-beizgeraete.de/English/Conti_Units/Tech-Data/tech-data.html)
- Petkus, 2002. Technical Specifications for the Petkus CTD. Seed Treater. [http://www.petkus.net/treater.htm#THE CTD-SERIES](http://www.petkus.net/treater.htm#THE_CTD-SERIES)
- Weinlaeder, Roger. 2002. Personal Communication with David W. Brassard on 4/26/02. ND Weinlaeder Seeds, Drayton, ND. 701-454-6427